

**HW: p. 476 #4, 10, 17, 19**

## **HOMEWORK:**

4)  $H_0: p = 1/6$       \*\*  $p = \text{percent of 6's}$   
     $H_a: p > 1/6$

$p\text{-value} = 0.03$

letter (d) is the correct conclusion.

10)  $H_0: p = 0.90$   
 $H_a: p \neq 0.90$

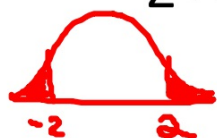
conditions

SRS,  $750 > 10$

$$657/750 = 0.876; \quad SD(\hat{p}) = \sqrt{\frac{(0.90)(0.10)}{750}} = 0.012$$

"statement"

$$Z = \frac{0.876 - 0.90}{0.012} = -2$$



$$P(Z < -2) = 0.977$$

There is more than a 97% chance that the stated percentage is correct for this region.

17) (a)  $H_0: p = 0.63$   
 $H_a: p > 0.63$

$$p = 0.63$$

$$n = 240$$

$$\hat{p} = 163/240 = 0.679$$

(b) STATE:

- SRS
- $np \geq 10$
- $nq \geq 10$
- $pop \geq 10n$

CHECK:

stated representative

$$(240)(0.63) \geq 10$$

$$(240)(0.37) \geq 10$$

there are more than 2400 students  
that use LSATisfaction training

Conditions met --> Normal Model --> 1 prop Z test

$$Z = \frac{0.6792 - 0.63}{\sqrt{\frac{(0.63)(37)}{240}}} = 1.571$$

$$P(Z > 1.571) = \text{normcdf}(1.571, \text{E99}, 0, 1) = 0.0581$$

We fail to reject  $H_0$  because p-value of 0.0581 is greater than  $\alpha = 0.05$ . We have sufficient evidence that the true % of law school applicants who were admitted after taking the training program is still 63%.

(c) No. There is no evidence that the program increased the % of people who were admitted to law school.

19) (a)  $H_0: p = 0.20$   
 $H_a: p > 0.20$

$$p = 0.20$$

$$n = 22$$

$$\hat{p} = 7/22 = 0.318$$

$$\text{pop} = 150$$

(b) STATE:

- SRS
- $np \geq 10$
- $nq \geq 10$
- $\text{pop} \geq 10n$

CHECK:

will have to assume representative

$$(22)(0.20) \geq 10$$

$$(22)(0.80) \geq 10$$

there are NOT more than 220 cars in the fleet

We can NOT use our Normal Model for our 1-Prop Z-test

If you proceeded anyway...

$$z = \frac{\hat{p} - p}{\sqrt{\frac{p \cdot q}{n}}} = 1.383$$

$$P(Z > 1.383) = \text{normcdf}(1.383, \text{E}99, 0, 1) = 0.0833$$

We fail to reject  $H_0$  b/c P-value of 0.0833 is greater than our alpha of 0.05. We have sufficient evidence that the true % of cars that fail emissions testing is still 20%.